ECS/EMD Configuration Change Request

1. Originator	2. Log Date:	3. CCR #:	4. Rev:	5. Tel:	6. Rm #:	7. Org.
Robert Cole	**3/23/04**	**04-0179**	**—**	301.925.0799	3109F	SE/HW

8. CCR Title: Deliver "fx fixer" startup script to DAACs

9. Originator Signature/Date	10. Class	11. Type:	12. Need Date: 3/30/04
Robert Cole /s/ 3/23/04	**II**	**CCR**	

13. CCR Sponsor Signature/Date	14. Category of Change:	15. Priority: (If "Emergency" fill in Block 27).
Pamela Johnson /s/ 3/23/04	Update ECS/EMD Baseline Doc	Routine

16. Documentation/Drawings Impacted *(Review and submit checklist):*	17. Schedule Impact:	18. CI(s) Affected:
N/A		SANHW

19. Release Affected by this Change:	20. Date due to Customer:	21. Estimated Cost:
		None - Under 100K

22. Source Reference: ☒NCR (attach) ☐Action Item ☐Tech Ref. ☐GSFC ☐Other:
ECSed38249

23. Problem: (use additional Sheets if necessary)
See next sheet.

24. Proposed Solution: (use additional sheets if necessary)
Deliver the script "fx_fixer2.sh" to all DAACs for DAAC admins to use on an as-needed basis. This script has been changed slightly from a version tested in the PVC. The modified version only examines devices in the /dev/sanergy directory whereas the original version examined all raw fabric devices on the host. This modified version is currently operational at LaRC and hence has been thoroughly tested.
Cksum: 85212577 1200 fx-fixer2.sh

25. Alternate Solution: (use additional sheets if necessary)
none

26. Consequences if Change(s) are not approved: (use additional sheets if necessary)
It will not be possible to functionally verify Sanergy's ability to fuse on a host in which this script is installed.

27. Justification for Emergency (If Block 15 is "Emergency"):

28. Site(s) Affected: ☐EDF ☐PVC ☐VATC ☒EDC ☒GSFC ☒LaRC ☒NSIDC ☐SMC ☐AK ☐JPL ☐EOC ☐IDG Test Cell ☐Other

29. Board Comments:	30. Work Assigned To:	31. CCR Closed Date:

32. SCDV CCB Chair (Sign/Date): **Byron Peters /s/ 03/25/04**	**Disposition:** Approved App/Com. Disapproved Withdraw Fwd/ESDIS ERB Fwd/ECS
33. EDF CCB Chair (Sign/Date):	**Disposition:** Approved App/Com. Disapproved Withdraw Fwd/ESDIS ERB Fwd/ECS
34. ECS CCB Chair (Sign/Date):	**Disposition:** Approved App/Com. Disapproved Withdraw Fwd/ESDIS ERB Fwd/ESDIS

ADDITIONAL SHEET

CCR #: 04-0179 Rev: — Originator:

Telephone: Office:

Title of Change:

Problem:
Due to a bug in either Irix or Qlogic drivers, in some cases fabric devices are unreadable upon bootup under 6.5.17m. This failure can be observed by executing "dd if=<dev> of=/dev/null count=1" and observing that 0+0 records out is returned by dd in some cases. Although it is not yet known exactly what causes the failure (not all 6.5.17m machines exhibit the problem nor do all devices on a given controller path on an affected host), a workaround has been identified. By executing the command "fx -d <dev>" and exiting without saving changes, the failed devices become readable. Until this action is performed, applications which rely on fabric I/O (such as sanergy) can fail due to the inability to read from the fabric devices.

The above workaround is very time-consuming for administrators to perform due to the large number of fabric devices on some systems. Also, there is potential for unintended corruption of the fabric devices to occur during the workaround due to human error. This is because the defualt behavior of the fx command is to write out changes and a typing error on the part of the user implementing the workaround can allow changes to be written. Consequently, an automated approach to performing the "fx fix" is needed.

Instructions:

1. Copy the "fx_fixer" script to /etc/init.d on affected SGI hosts.
2. Create a symbolic link from /etc/rc2.d/S96fx_fixer to /etc/init.d/fx_fixer.
3. Reboot the host
4. Verify that Sanergy fuses normally.

Script code:

```
#!/bin/sh
#
#  fx_fixer - calls 'fx' on fabric devices to force creation of block devs
#
# This is necessary due to a bug in Irix 6.5.17m (and possibly other versions)
# where fabric devices are not readble upon bootup with certain Qlogic cards
# (the problem is known to occur with QL2200A and QL2310).
#
# The failure can be observed by running the dd command against the device to
# read a single block. If dd returns 0+0 records out, the device is in the
# failed state. Executing fx -d <device> and immediately exiting without writing
# changes will restore the device to a state in which it is readable.
#
for dev in `ls -l /dev/sanergy | grep -v ^total | awk '{print $11}'`   # get list of fabric devices
do
  ret=`dd if=$dev of=/dev/null count=1 2>&1 | awk '$0 ~ /records out/ {print $1}'` # dd test
if test $ret = 0\+0 # look for failure indication
then # run the fx command to fix the device
  (fx -d $dev 1> /dev/null <<EOF
exit
no
EOF
)
  # verify the fix and log results to syslog
  ret2=`dd if=$dev of=/dev/null count=1 2>&1 | awk '$0 ~ /records out/ {print $1}'`
  if test $ret2 = 0\+0
  then
    logger fx_fixer: unable to fix $dev
  else
    logger fx_fixer: fixed $dev
  fi
fi
done
```